

Appendix A

Wind Chill Index

The Wind Chill is the temperature that the body feels when temperature and wind are combined. When the wind blows across the skin, it removes the insulating layer of warm air adjacent to the skin. As the wind increases, heat is carried away from the body at an accelerated rate, driving down the body temperature. The result is that the air feels much colder than it really is.

To determine the wind chill, find the outside air temperature on the top line, then read down the column to the measured wind speed. The point of intersection of the two lines is the wind chill. For example, if the outside air temperature is 10 degrees and the measured wind speed is 25 mph, the wind chill is -11 degrees.

		Temperature (F)																		
		Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
Wind (mph)	5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63	
	10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72	
	15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77	
	20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81	
	25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84	
	30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87	
	35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89	
	40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91	
	45	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93	
	50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95	
	55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97	
	60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98	

Frostbite occurs in 15 minutes or less

Dangers of Wind Chill:

Frostbite: Frostbite is damage to body tissue caused by freezing. Frostbite causes a loss of feeling and a white or pale appearance in extremities, such as fingers, toes, ear lobes, or the tip of the nose. If symptoms are detected, *get medical help immediately*. If you must wait for help, slowly warm affected areas. However, if the person is also showing signs of hypothermia, warm the body core before the extremities.

Hypothermia (Low Body Temperature):

Warning Signs: Uncontrollable shivering, memory loss, disorientation, incoherence, slurred speech, drowsiness, and apparent exhaustion.

Detection: Take the person's temperature. If it is below 95 deg F (35 deg C), *seek medical help immediately*. If medical care is not available, begin warming the person slowly. Warm the body core first. If needed, use your own body heat to help. Get the person into dry clothing and wrap them in a warm blanket, covering the head and neck. Do not give the person alcohol, drugs, coffee, or any hot beverage or food; warm broth is much better. Do not warm extremities first. This drives the cold blood toward the heart and can lead to heart failure.

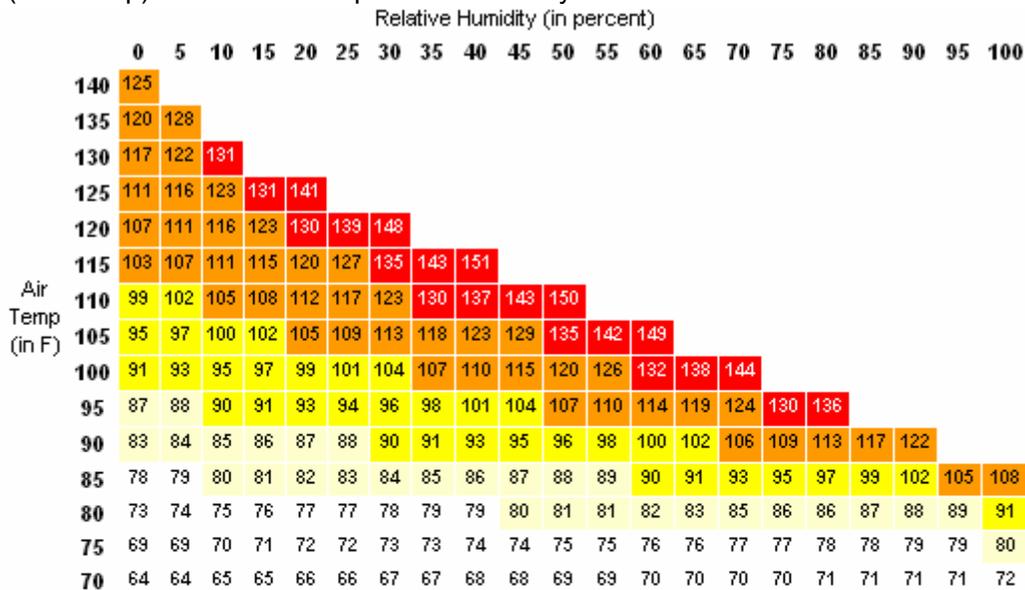
Heat Index

Heat kills by forcing the human body to operate beyond its normal capabilities. In a normal year, about 175 Americans succumb to the demands of summer heat. Among the many natural hazards, only the cold of winter—not lightning, hurricanes, tornadoes, floods, or earthquakes—takes a greater toll than heat. In the 40-year period from 1936 through 1975, nearly 20,000 people were killed in the United States by the effects of heat and solar radiation. Most deaths are you children and elderly people whose bodies cannot regulate the heat well. In the disastrous heat wave of 1980, more than 1,250 people died.

Human bodies dissipate heat by varying the rate and depth of blood circulation, by losing water through the skin and sweat glands, and, as a last resort, panting when the body temperature is heated well above 98.6 degrees. Sweating, by itself, does nothing to cool the body, unless the water is removed by evaporation—and high humidity retards evaporation.

As a result, the National Weather Service has devised the HEAT INDEX (HI), sometimes called the 'apparent temperature.' A HI value is the temperature the body feels when the heat and humidity are combined. The table below is the Heat Index Chart—based on shady, light wind conditions. Exposure to full sunshine can increase HI values by up to 15 degrees F.

To read this chart, take the temperature (on the left) and follow it to the right until it crosses the humidity (on the top). This is the temperature the body thinks it is.



Heat Index	General Effect of Heat Index on People in Higher Risk Groups
80 to 89° - Very Warm	Fatigue possible with prolonged exposure and/or physical activity.
90 to 104° - Hot	Sunstroke, heat cramps and heat exhaustion possible with prolonged exposure and/or physical activity.
105 to 129° - Very Hot	Sunstroke, heat cramps or heat exhaustion likely, and heatstroke possible with prolonged exposure and/or physical activity.
130° or higher - Extremely Hot	Heat/sunstroke highly likely with continued exposure.

Heat Index

Heat disorders result from a reduction or collapse of the body's ability to shed heat. When heat gain exceeds the level at which the body can remove it, or when the body can not compensate for fluids and salt lost through perspiration, the temperature of the body's inner core begins to rise and heat-related illness may develop.

The following table lists the symptoms and first aid for the various types of heat disorders. Persons with special diets, medications, or water restrictive diets should contact professional medical advice when threatened with heat wave disorders.

Heat Disorder	Symptoms	First Aid
Sunburn	Redness and pain. In severe cases, swelling of skin, fevers, blisters, and headaches can occur.	Ointments for mild cases. If blisters appear, do not break the skin. If a skin break occurs, apply dry sterile dressing. Serious extensive cases should be seen by a physician.
Heat Cramps	Painful spasms usually in muscles of legs and abdomen. Heavy swelling.	Apply firm pressure on cramping muscle, or gently massage to relieve spasm. Give sips of water. If nausea occurs, discontinue water.
Heat Exhaustion	Heavy sweating, weakness, cold skin, clammy and pale. Pulse irregular. Normal temperature possible. Fainting and vomiting.	Remove victim from the sun. Lie victim down and remove clothing. Apply cool, wet cloths. Fan or move the victim to an air-conditioned room. Give sips of water. If nausea occurs, discontinue. If vomiting occurs, seek immediate medical attention.
Heat Stroke	High body temperature, usually 106 degrees F or more. Hot, dry skin. Rapid and strong pulse. Possible unconsciousness.	HEAT STROKE IS A SEVERE MEDICAL CONDITION. GET MEDICAL HELP IMMEDIATELY. ANY DELAY MAY BE FATAL. Once you have called for medical attention, move the victim to a cooler area. remove the victims clothing and reduce body temperature with a cold bath or sponging. Use fans and air conditioners. If the victim's body temperature rises again, repeat cooling processes. Do not give the victim fluids.

Wind Speed Conversion Charts

To use the Wind Speed Conversion charts:

If you want to find the equivalent wind speed in MPH, given Knots, use the table with KT in upper left corner. Go along the left line (labeled KT), and find the tens digit of wind. Then move along the top of the table to find the single digit. The intersection of the two lines will give the speed in miles per hour. Use the same process using the other table for converting miles per hour to knots.

Examples: Given 36 Knots, using process above gives 42 MPH
 Given 26 MPH, using process above gives 23 Knots.

Wind Speed Conversion Charts

Miles Per Hour (MPH) to Knots (KT)

1 Knot = 1.1516 MPH

MPH	0	1	2	3	4	5	6	7	8	9
	KT									
0	0	1	2	3	4	4	5	6	7	8
10	9	10	10	11	12	13	14	15	16	17
20	17	18	19	20	21	22	23	23	24	25
30	26	27	28	29	30	30	31	32	33	34
40	35	36	37	37	38	39	40	41	42	43
50	43	44	45	46	47	48	49	50	50	51
60	52	53	54	55	56	56	57	58	59	60
70	61	62	63	63	64	65	66	67	68	69
80	70	70	71	72	73	74	75	76	76	77
90	78	79	80	81	82	83	83	84	85	86

Knots (KT) to Miles Per Hour (MPH)

1 MPH = 0.8684 Knot

KT	0	1	2	3	4	5	6	7	8	9
	Miles Per Hour					Miles Per Hour				
0	0	1	2	3	4	5	6	8	9	10
10	12	13	14	15	16	17	18	20	21	22
20	23	24	25	27	28	29	30	31	32	33
30	35	36	37	38	39	40	42	43	44	45
40	46	47	48	50	51	52	53	54	55	56
50	58	59	60	61	62	63	65	66	67	68
60	69	70	71	73	74	75	76	77	78	80
70	81	82	83	84	85	86	88	89	90	91
80	92	93	94	96	97	98	99	100	101	103
90	104	105	106	107	108	109	111	112	112	114

Temperature Conversion Charts

To use the temperature conversion charts:

If you'd like to find the temperature in Celsius, given Fahrenheit, find the appropriate table.

Go along the left line (labeled TF), and find the tens digit of temperature. Then move along the top of the table to find the single digit. The intersection of the two lines will give the temperature in Celsius. Use same process using the other table for converting Celsius to Fahrenheit.

Temperature Conversion Charts

Celsius to Fahrenheit

Conversion Formula: $\text{Deg F} = (9/5 \times \text{deg C}) + 32$

TC	0	1	2	3	4	5	6	7	8	9
Temperature in Fahrenheit										
-30	-22	-24	-26	-27	-29	-31	-33	-35	-36	-38
-20	-4	-6	-8	-9	-11	-13	-15	-17	-18	-20
-10	14	12	10	9	7	5	3	1	0	-2
-0	32	30	28	27	25	23	21	19	18	16
0	32	34	36	37	39	41	43	45	46	48
10	50	52	54	55	57	59	61	63	64	66
20	68	70	72	73	75	77	79	81	82	84
30	86	88	90	91	93	95	97	99	100	102
40	104	106	108	109	111	113	115	117	118	120

Fahrenheit to Celsius

Conversion Formula: $\text{Deg C} = 5/9 \times (\text{deg F} - 32)$

TF	0	1	2	3	4	5	6	7	8	9
Temperature in Celsius										
-30	-34	-35	-36	-36	-37	-37	-38	-38	-39	-39
-20	-29	-29	-30	-31	-31	-32	-32	-33	-33	-34
-10	-23	-24	-24	-25	-26	-26	-27	-27	-28	-28
-0	-18	-18	-19	-19	-20	-21	-21	-22	-22	-23
0	-18	-17	-17	-16	-16	-15	-14	-14	-13	-13
10	-12	-12	-11	-11	-10	-9	-9	-8	-8	-7
20	-7	-6	-6	-5	-4	-4	-3	-3	-2	-2
30	-1	-1	0	1	1	2	2	3	3	4
40	4	5	6	6	7	7	8	8	9	9
50	10	11	11	12	12	13	13	14	14	15
60	16	16	17	17	18	18	19	19	20	20
70	21	22	22	23	23	24	24	25	26	26
80	27	27	28	28	29	29	30	31	31	32
90	32	33	33	34	34	35	36	36	37	37
100	38	38	39	39	40	41	41	42	42	43
110	43	44	44	45	46	46	47	47	48	48

Time Conversion Charts

This is a handy time conversion chart. It compares Universal Time (UTC), often referred to as Z time, to Pacific Daylight Time (PDT), Pacific Standard Time (PST), and the 24-hour code (military time).

UTC	PDT	PDT (24 Hr)	PST	PST (24 Hr)	UTC	PDT	PDT (24 Hr)	PST	PST (24 Hr)
00	5 pm	1700	4 pm	1600	12	5 am	0500	4 am	0400
01	6 pm	1800	5 pm	1700	13	6 am	0600	5 am	0500
02	7 pm	1900	6 pm	1800	14	7 am	0700	6 am	0600
03	8 pm	2000	7 pm	1900	15	8 am	0800	7 am	0700
04	9 pm	2100	8 pm	2000	16	9 am	0900	8 am	0800
05	10 pm	2200	9 pm	2100	17	10 am	1000	9 am	0900
06	11 pm	2300	10 pm	2200	18	11 am	1100	10 am	1000
07	12 am	2400	11 pm	2300	19	12 pm	1200	11 am	1100
08	1 am	0100	12 am	2400	20	1 pm	1300	12 pm	1200
09	2 am	0200	1 am	0100	21	2 pm	1400	1 pm	1300
10	3 am	0300	2 am	0200	22	3 pm	1500	2 pm	1400
11	4 am	0400	3 am	0300	23	4 pm	1600	3 pm	1500

Spotter Reporting Criteria

Trained weather spotters use the following criteria to call in significant weather events occurring in NW Oregon or SW Washington:

- * **Tornado** or **funnel cloud** or **waterspout**, frequent lightning or damaging thunderstorm winds
- * **Hail of ½ inch** in diameter or larger (dime size or larger)
- * **Heavy rain:** 1 inch or more within 12 hours, or ½ inch or more within 1 hour
- * **Flooding of any kind.** Rivers approaching bankfull or ponding of water on roadways
- * **High winds** with sustained or frequent gusts 40 mph or more. Report any wind damage.
- * **Heavy snow:** 1 inch or more in the valley/coast, or 4 inches or more elsewhere
- * **Blowing snow** when winds are more than 30 mph and visibility is less than ½ of a mile
- * **Freezing rain**, especially if any accumulations occur
- * **High surf** or **unusually high tides** that are causing beach erosion
- * **Volcanic activity** or **earthquakes**